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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/039,289	01/04/2002	Gilbert Wolrich	10559-612001/P12851	8345

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EXAMINER	
CHANNAVAJJALA, SRIRAMA T	
ART UNIT	**PAPER NUMBER**
2177	6

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/039,289	WOLRICH ET AL	
	Examiner	Art Unit	
	Srirama Channavajjala	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-30 are pending in this application.

Drawings

2. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings are required in response to this office action.

3. Drawings filed on 1/4/2002 are objected because, fig 2-4 do not have LABELS for the corresponding block numbers, for example fig 2, element 14,18,20,10,12, 16 required memory, output queue, queue descriptor, processor, cache, memory controller LABELS respectively. Therefore, applicant is hereby required to provide missing information in the drawings in response to this office action, paper no. # 6.

Specification

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

4. In the specification, "BRIEF SUMMARY OF THE INVENTION" is missing. Applicant is hereby required to provide *"BRIEF SUMMARY OF THE INVENTION"* in response to this office action.

Claim Objections

5. Claim 20 is objected to because of the following informalities: At page 15, Claim 20, line 9, "valid **bots**", it appears to be typo error, and should be "valid **bits**", and it is treated in the office action as "valid **bit**". Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1,7,14 are rejected under 35 U.S.C. 101 because invention is directed to non-statutory subject matter.

Method Claim(s) 1,17 recites only steps, which are not in the Technological arts in that they fail to recite the steps as executed on or by a Computer.

For apparatus Claim 14, the apparatus comprises memory for storing queue descriptors, a cache for storing queue descriptors, fetch from the memory to the

cache.... Return to the memory from the cache portions.... Is either hardware or both hardware and software per se, failing to be tangibly embodied.

Further, Claims 1,7 do not produce a useful, concrete, tangible result in the Computer technological arts. The invention as disclosed and claimed does not promote the progress of the useful arts. Accordingly independent Claims 1.7.14 do not define statutory subject matter.

In analyzing Claims 1,7, for patent eligible subject matter, it is useful to first answer the question ***"What did applicant[s] invent?"*** In re Abele, 214 USPQ 682 (CCPA 1982). While the preamble for example Claim 1,7,14 characterizes the invention as ***"A method comprising:"*** ***"An apparatus comprising:"*** a careful reading of the specification reveals that the applicant's invention can be best described as a method and /or an apparatus to storing queue descriptor information in the memory, executing commands related to enqueue, dequeue, queue operations for fetching from memory to cache.

Having determined in general what the invention is, we must analyze it under the prevailing case law. The statute itself allows for the patenting of method, apparatus, and processes. However, it has been determined in many contexts that not all processes, methods, and apparatus set forth patent eligible subject matter. One test that has recently been applied is whether the invention produces a useful, concrete, tangible result. ***See e.g., States Street Bank & Trust Co. v Signature Communications Inc.,*** 47 USPQ2d 1596 (Fed. Cir. 1998); ***AT&T Corp. V Excel Communications Inc.,*** 50 USPQ2d 1447 (Fed. Cir. 1999). Under that test, the

invention must have practical utility, it must produce an assured result, and it must not be merely an abstraction lacking in physical substance

As explained above, examiner further noted that the term or phrase "technological arts" is synonymous with the phrase or term "useful arts" as it appears in Article I, section 8 of the Constitution. *In re Waldbaum*, 173 USPQ 430 (CCPA 1972). And for a claim to be statutory, it must be in the technological arts. *In re Musgrave*, 167 USPQ 280 (CCPA 1970) and *In re Johnston*, 183 USPQ 172 (CCPA 1974).

Claims 2-6,8-13,15-25 dependent on Claims 1,7,14 are also rejected in the analysis above and rejected on that basis.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-30 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting, as being unpatentable over claim 1-23 of copending Application No 10/041678 is now Pub. No. US 20030131198A1.

Claims of co-pending application Sl.No. 10/041678 contains(s) every element of Claims 1-30 of the instant application and as such anticipates claims 1-30 of the instant application, and co-pending application claims are broader than the instant application claims.

"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or **anticipated by**, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re

Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 (Fed.Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). "ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Slane, US Patent No. 6438651.

10. As to Claim 1, 26, Slane teaches a system which including 'storing in memory a queue descriptor including a head pointer pointing to a first element in a queue and a tail pointer pointing to a last element in the queue' [col 3, line 40-42]; 'in response to a command to perform an enqueue or dequeue operation with respect to the queue, fetching from the memory to a cache one of either the head pointer or tail pointer'

[col 2, line 23-26, col 3, line 52-61, fig 2], Slane teaches queue operations, more specifically enqueue, dequeue operations to the queue as detailed in fig 2, further Slane also teaches memory element 60 having a data structure that contains head and tail pointers elements 64 and 66 as detailed in fig 2; 'returning to the memory from the cache portions of the queue descriptor modified by the operation' [col 4, line 4-8].

11. As to Claim 2, 15, Slane disclosed 'fetching the head pointer and not the tail pointer in response to a command to perform a dequeue operation' [col 3, line 52-55, col 4, line 47-49, col 5, line 61-63, fig 3].

12. As to Claim 3, 16, Slane disclosed 'fetching the tail pointer and not the head pointer in response to a command to perform an enqueue operation' [col 4, line 47-51, fig 3].

13. As to Claim 4, 17, Slane disclosed 'returning to memory the head pointer and not the tail pointer if only dequeue operations were performed on the queue'[col 4, line 51-52, line 56-60, fig 4-6].

14. As to Claim 5, 18, Slane disclosed 'returning to memory the tail pointer and not the head pointer if only enqueue operations were performed on the queue while the queue was unempty' [col 5, line 64-67, col 6, line 1-8].

15. As to Claim 6, 19, Slane disclosed 'returning to memory the head pointer and tail pointer if an enqueue and a dequeue operation were performed on the queue, or an enqueue operation was performed on the queue while the queue was empty' [col 7, line 3-8].

16. As to Claim 7, Slane teaches a system which including 'determining whether a head pointer or a tail pointer of a queue descriptor that was fetched from memory to a cache had been modified by an enqueue or a dequeue operation' [fig 2, col 3, line 52-66, col 4, line 37-47], Slane is directed to managing requests to a cache using flags to queue and dequeue data, more specifically optimizing read and write events for queues [see Abstract], further it is noted that Slane also specifically directed to queue operations that including enqueue, dequeue operations with respect to main memory using tail and head pointers [see fig 2]; 'returning a particular pointer to the memory from the cache only if that pointer had been modified' [col 4, line 56-62].

17. As to Claim 8, 20, Slane disclosed 'using valid bits in the cache to track modifications to the pointers' [col 6, line 19-25].

18. As to Claim 9, 21, Slane disclosed 'using a first valid bit to track modifications to the head pointer and second valid bit to track modifications to the tail pointer' [col 6, line 26-37].

19. As to Claim 10, 22, 29, Slane disclosed 'setting the first valid bit if a dequeue operation is performed with respect to the queue descriptor' [col 6, line 57-64], 'an enqueue operations performed with respect to the queue descriptor while the queue is empty' [col 7, line 3-12].

20. As to Claim 11, 23, Slane disclosed 'setting the second valid bit if an enqueue operation is performed with respect to the queue descriptor' [col 4, line 65-67, col 5, line 1-8].

21. As to Claim 12, 24, Slane disclosed 'setting a pointer's valid bit when the pointer is fetched from the memory to the cache' [col 5, line 55-63].

22. As to Claim 13, 25, 30, Slane disclosed 'returning to the memory pointers whose valid bits have been set' [col 5, line 59-63].

23. As to Claim 14, Slane teaches a system which including 'memory for storing queue descriptors which include a head pointer pointing to a first element in a queue and a tail pointer pointing to a last element in the queue' [fig 2, col 3, line 40-42, line 52-57]; 'a cache for storing queue descriptors corresponding to up to a number of the memory's queue descriptors' [col 3, line 40-42 line, 58-61], 'a processor configured to: fetch from the memory to the cache one of either the head pointer or the tail pointer of a particular queue descriptor in response to a command to perform an enqueue or a

dequeue operation with respect to the particular queue descriptor' [col 2, line 23-26, col 3, line 52-61, fig 2], Slane teaches queue operations, more specifically enqueue, dequeue operations to the queue as detailed in fig 2, further Slane also teaches memory element 60 having a data structure that contains head and tail pointers elements 64 and 66 as detailed in fig 2; 'return to the memory from the cache portions of the queue descriptor modified by the operation' [col 4, line 4-8].

24. As to Claim 27, Slane disclosed 'fetch the head pointer and not the tail pointer in response to a command to perform a dequeued operation' [col 3, line 52-55, col 4, line 47-49, col 5, line 61-63, fig 3], 'fetching the tail pointer and not the head pointer in response to a command to perform an enqueue operation' [col 4, line 47-51, fig 3].

25. Slane disclosed 'returning to memory the head pointer and not the tail pointer if only dequeue operations were performed on the queue'[col 4, line 51-52, line 56-60, fig 4-6].

26. As to Claim 28, Slane disclosed 'the head pointer and not the tail pointer if only dequeue operations are performed on the queue'[col 4, line 51-52, line 56-60, fig 4-6], 'the tail pointer and not the head pointer if only enqueue operations are performed on the queue while the queue was unempty' [col 5, line 64-67, col 6, line 1-8], 'the head pointer and tail pointer if both an enqueue and a dequeue are performed on the queue,

or an enqueue operation was performed on the queue while the queue was empty' [col 7, line 3-8].

Conclusion

The prior art made of record

a. US Patent No. 6438651

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

b. US Patent No. 5268900

c. US Patent No. 5684962

d. US Patent No. 6351474

e. US Patent No. 6684303

f. US Patent No. 2002/0144006

g. US Patent No. 2002/0131443

h. EP0418447

i. Eric A Brewer et al., "Remote queue: exposing message queues for optimization and atomicity, appears in SPAA '95 Santa Barbara, CA pp 1-13

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srirama Channavajjala whose telephone number is (703) 308-8538. The examiner can normally be reached on Monday-Friday from 8:00 AM to 5:30 PM Eastern Time. The TC2100's Customer Service number is (703) 306-5631.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene, can be reached on (703) 305-9790. The fax phone numbers for the organization where the application or proceeding is assigned are as follows:

703/746-7238	**(After Final Communication)**
703/872-9306	**(Offical Communications)**
703/746-7240	**(For Status inquiries, draft communication)**

Any inquiry of general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-9600.

sc
Patent Examiner.
April 30, 2004.